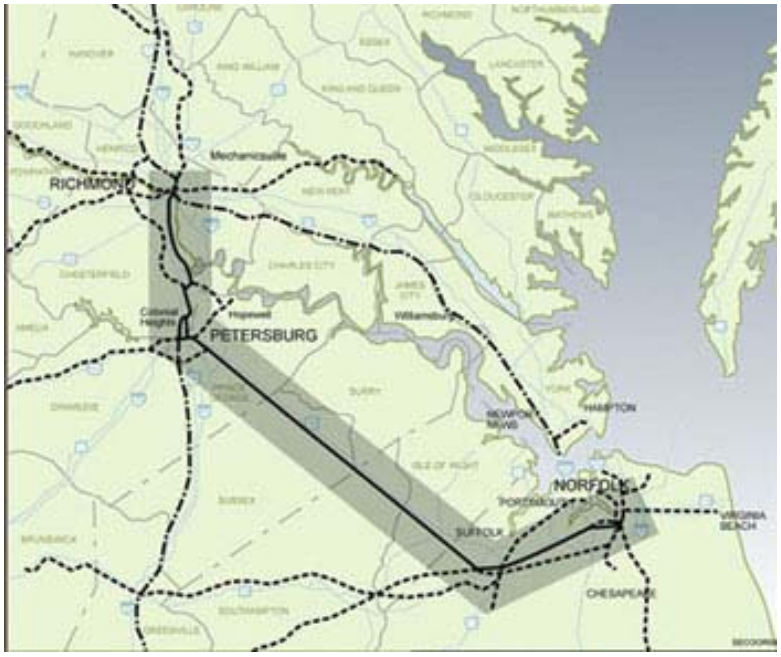
Richmond to South Hampton Roads High-Speed Rail Feasibility Study

EXECUTIVE SUMMARY



Prepared for:
Virginia Department of
Rail and Public Transportation

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PARSONS

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Introduction

The findings of the Parsons Transportation Group (PTG) team's Engineering Feasibility Analysis of the Richmond to South Hampton Roads corridor are summarized in this document. The draft Report is submitted to DRPT and the Technical Advisory Committee for review and comment. Topics addressed in the draft Executive Summary include:

- Assessment of current conditions;
- Analysis of critical locations;
- Projection of future traffic and capacity requirements;
- Preliminary identification of improvements;
- Overview of environmental constraints;
- Analysis of ridership and revenue potential; and
- Capital Cost Estimates for the improvements.

The analysis of the rail infrastructure of the study area has identified a program of improvements that would be necessary to accommodate frequent passenger trains operating at speeds of up to 110 mph.

Proposed Richmond To South Hampton Roads High-Speed Rail Service

The Virginia Department of Rail and Public Transportation (DRPT) contracted with the Parsons Transportation Group (PTG) to evaluate the potential for high-speed rail service in the Richmond-Petersburg-South Hampton Roads Corridor. The study evaluated the requirements, and developed an overall long-range track configuration, alignment plan, and operating plan that would support the requirements of all potential users of the rail line. The corridor may be considered a natural extension of the Southeast High-Speed Rail Corridor (SEHSR)[1] running from Petersburg to the South Hampton Roads area. The route would extend between Main Street Station in Richmond and a terminal station near the Harbor Park baseball stadium in downtown Norfolk. It would make use of a combination of CSX Transportation (CSXT) and Norfolk Southern (NS) rail lines;[2] CSXT between Richmond and Petersburg and in the Hampton Roads area; and NS between Petersburg and Norfolk.

The proposed Richmond - South Hampton Roads high-speed rail service would provide stations located conveniently to Norfolk, Virginia Beach, and other communities south of Hampton Roads. The current bridge-tunnel link between the Newport News Amtrak station and south side of Hampton Roads, a connecting bus, provides a somewhat circuitous and often congested route to Norfolk and Virginia Beach. New

[1] The Parsons Transportation Group (PTG) has recently completed two related studies, of the Washington-Richmond corridor and the Richmond-Petersburg-Raleigh-Charlotte corridor, for the FRA. The studies were performed in coordination with DRPT, NCDOT, Amtrak, CSXT, and NS.

[2] The potential for utilizing trackage owned by short line railroads in the South Hampton Roads area also has been evaluated as part of the study.

stations on the south side would require much shorter and more reliable access times and make service convenient to more communities.

A variety of alternative south side station locations have been evaluated. Key Hampton Roads markets include:

- Downtown Norfolk,
- Downtown Portsmouth,
- Virginia Beach,
- Norfolk Naval Base,
- Other Norfolk destinations,
- Other Portsmouth destinations,
- Chesapeake, and
- Suffolk.

Downtown Norfolk and Portsmouth are relatively compact markets that could be served by a station located in one of these areas. The remaining markets are spread over a much larger geographic area and would be best served by a "suburban" station with good access to the highway system.

The Existing Services

A varied network of surface transportation options exists in the James River Corridor, between Richmond and Hampton Roads. However, public transportation is limited. Amtrak currently operates conventional rail service providing two round trips per day between Richmond and Newport News, with Thruway bus service between the Newport News station, Norfolk and Virginia Beach. These trains also serve Williamsburg as an intermediate stop between Richmond and Newport News. In 1999, a total of about 110,000 passengers were served at Newport News (including those using the connecting bus service) and about 45,000 passengers were served at Williamsburg. Most of these passengers travel to/from Washington, New York, and other locations in the Northeast Corridor. Service on the south side of the river is extremely limited, with only one Carolina Trailways bus scheduled, and no Amtrak service. Bus service on the north side of the river ranges in travel time from 1-hour 45 minutes to 2 hours 50 minutes between Richmond and Norfolk.

To effectively and efficiently develop a market, the following critical tasks were undertaken to ensure that informed choices are made: ridership forecasts were developed; operating scenarios were analyzed; facility options were evaluated; and potential environmental constraints were analyzed.

Rail Passenger Service in Virginia

The DRPT is actively pursuing significant increases in intercity rail passenger service throughout the state. All of the corridors being evaluated include Richmond's Main Street Station as the hub for these services. Presently, Main Street Station is closed, although Amtrak service to Newport News uses the eastern-most station tracks. The City of Richmond has purchased the station from the Commonwealth and is currently renovating the facility. The city is working with DRPT and Amtrak to re-institute rail passenger service into and through the station.

Amtrak's Staples Mill Road Station, located almost 15 minutes by rail north of Main Street Station, is the only rail passenger station presently serving Richmond.

Amtrak trains to points south of Richmond stop at Staples Mill Road Station, but utilize the CSXT A Line (the former Atlantic Coast Line route) to reach Petersburg, VA. Once Main Street Station is re-opened, all passenger trains, with the exception of Amtrak's AutoTrain, would utilize the former "S" Line to reach Petersburg, VA[3].

Fundamental Requirements of NS and CSXT - To Be Fulfilled Before New Passenger Service Begins

Both NS and CSXT submitted comments[4]. NS's stated position is that prior to initiation of new passenger service on their tracks, the proposed operation must:

- Improve safety of all rail operations in the area;
- Be transparent to freight operations, i.e., sufficient infrastructure must be provided to enable freight trains and passenger trains to operate without delay to either, and to allow for the growth of both;
- Furnish sufficient indemnity for liability; and
- Compensate NS for the use of its asset with a level of return similar to that of freight trains.

In addition, NS and CSXT state that they will retain control of dispatching of trains on all tracks over which their freight trains will operate after inauguration of the high-speed passenger service.

The Corridor Today

Location

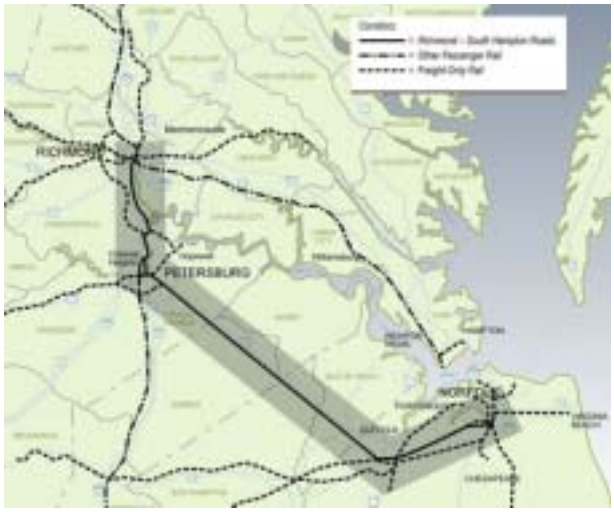


Figure 1: Richmond–South Hampton Roads Corridor

The study corridor connects Richmond and South Hampton Roads via Petersburg and Suffolk (Figure 1). In 1995 the Commonwealth requested that the United States Secretary of Transportation expand the federally designated SEHSR Corridor to include a link from Richmond to Hampton Roads. This designation is not specific to any particular rail line and will be applicable to whichever corridor is selected as the route for high-speed rail service to the Hampton Roads metropolitan area.

Length and ownership

[3] PTG presently is under contract to the FRA to determine the requirements to re-institute rail passenger service on the "S" Line. Performed in cooperation with DRPT, NCDOT, Amtrak, and CSXT, the study will define an alignment that would utilize the "S" Line to a point just north of the Appomattox River in Petersburg.

[4] , NS comments are attached as Appendix A.

The proposed rail route of the Richmond–South Hampton Roads Corridor extends for 105 miles between Main Street Station, Richmond[5] and Park Avenue (Formerly Lovett Avenue) in Norfolk, Virginia. CSXT and NS are the primary owners of the existing rail infrastructure. CSXT owns the line segments between Richmond and Petersburg and between Suffolk and Algren (Bowers Hill); NS owns the segments between Petersburg and Suffolk, and between Algren and Norfolk.

Trackage and Track Conditions

The route primarily has two tracks except for three segments of single-track, in Petersburg, between Suffolk and Algren, and between Algren and South Norfolk. The owner railroads have maintained the line in a condition satisfactory for the current designated operating speed class wherever necessary.

Alignment

The alignment has numerous long stretches of tangent track that would not constrain passenger or freight train performance.

Signaling

The automatic block signaling system that is installed almost the entire length of the route—although safe for existing speed levels—will not support passenger train speeds in excess of 79 mph. The existing signal system does not include continuous cab signaling and automatic train control features, similar to those of the Northeast Corridor, required by Federal regulations to exceed 79 mph. Therefore, a significant amount of upgrading would be necessary for high-speed rail service.

Highway-Railroad Grade Crossings

Like most proposed high-speed corridors, Richmond–South Hampton Roads contains numerous public and private highway-rail at-grade crossings. Almost all the public crossings have flashing lights, gates, and warning bells. The private crossings generally have crossbucks only. Every effort should be made to upgrade or install enhanced protective devices, and/or close or grade-separate as many grade crossings as possible. As a minimum, every crossing will be protected with active warning devices over which passenger trains operate at speeds greater than 80 mph.

Stations

In the Richmond area, Amtrak trains presently stop at Staples Mill Road Station, located north of downtown Richmond. The City of Richmond is restoring, in three phases, the centrally located Main Street Station as an intermodal passenger facility, which will become the station for intercity trains. Passenger service is currently offered at Ettrick (Petersburg area) by Amtrak intercity trains operating between New York City and North Carolina and Florida also stop at Ettrick, for the Petersburg area.

[5] This is not now an operational station but will be reopened under pending plans.

Users and Services

The proposed Richmond–South Hampton Roads passenger rail service would use what is a primarily freight corridor, over which Amtrak trains to North Carolina and Florida presently operate between Centralia and Petersburg. Amtrak provides two distinct lines of service in this corridor:

- Long-distance— trains serving intercity and leisure travel; and
- Auto Train—a specialized service carrying passengers and their motor vehicles between Northern Virginia and central Florida.

Freight

CSXT operates freight trains between Richmond and Petersburg on both the A Line and the remaining segment of the S Line (the former Seaboard Airline Railroad, and between Suffolk and Portsmouth. NS operates trains between Petersburg and Norfolk. Both railroads also serve local shippers.

Freight operations are much more variable than passenger services, in terms of scheduling, train size, train performance, and frequency in a given period of time. Freight trains vary significantly in their performance capabilities and compatibility with passenger operations. For example, unit trains of coal and grain generally have a lower horsepower-to-tonnage ratio and poorer performance than more time-sensitive operations. Thus, a general merchandise or intermodal train ordinarily takes less time to clear a given route segment than a unit coal train.

The need to efficiently manage traffic during daylight hours will become critical in the future. Not only will rail passenger travel increase, but CSXT and NS have projected higher levels of freight traffic than currently operate over these heavily utilized routes.

Areas of Special Complexity

Except for the CSXT A Line, the rail lines involved in the study essentially have been freight-only lines for more than 30 years. Development of a reliable high-speed route has required an analysis of numerous locations and stretches of rail line to define a network that reliably would support projected future freight and passenger operations.

The evaluation of current conditions and potential improvements to support high-speed passenger services to South Hampton Roads has been coordinated for consistency with planned improvements for the *SEHSR Corridor* (Richmond-Charlotte, NC) services, particularly in the common Richmond—Petersburg section. Both high-speed services must be planned and designed to:

- Provide cost effective improvements necessary to increase the capacity of existing rail lines;
- Provide one station in the Petersburg-Ettrick-Colonial Heights area that can serve all current and proposed passenger trains (South Hampton Roads Service, SEHSR Service, and current Amtrak Service);
- Coordinate train schedules in the “shared” corridor among the three services; and
- Minimize conflicts with freight operations.

The S Line, from Main Street Station to Centralia

The South Hampton Roads High-Speed service would utilize the CSXT S Line between Richmond, VA, and Centralia. Previous studies for the *SEHSR Corridor* have identified improvements to the S Line necessary to operate high-speed passenger service. Combined with signal system improvements, this route would provide entry into the restored Main Street Station in downtown Richmond, VA, for all passenger trains operating from the south.

Centralia to Petersburg

A third track, designated for passenger use, would be constructed on the east side of CSXT's A Line between Centralia and one of several proposed diverging points on the north side of Petersburg.[6] This added track would be the preferred track for passenger operations, both north- and southbound, and would provide passenger trains access to the S Line to Richmond without crossovers and conflicts with CSXT's primary freight operations on the A Line.

Petersburg

Where and how passenger trains between Richmond and South Hampton Roads would pass through Petersburg is the key critical issue to be addressed. Direct passenger rail access from Richmond to South Hampton Roads has not existed for years. Recent developments and construction make re-institution of the route difficult, but not impossible. Five different route alternatives have been identified, each having different impacts on operations, and each requiring different levels of capital investment to construct. The route selection criteria were:

- Provide one station in the Petersburg-Ettrick-Colonial Heights area that can serve all current and proposed passenger trains;
- Minimize operating conflicts with freight trains;
- Avoid operating ***passenger*** trains through busy freight yards;
- Minimize the capital cost of bridge, structures, and additional tracks required; and
- Provide segments of track where passenger trains can run unimpeded.

The five connection alternatives, discussed below, were named:

- North Collier Connection,
- Secoast Connection,
- West Connection,
- Ettrick Connection, and
- Dunlop Connection.

The first two options would use the NS Belt Line, passing south of Petersburg. The other three would use the older NS Main Line. The Main Line appears to have an advantage in avoiding the considerable amount of freight traffic on the Belt Line. Using

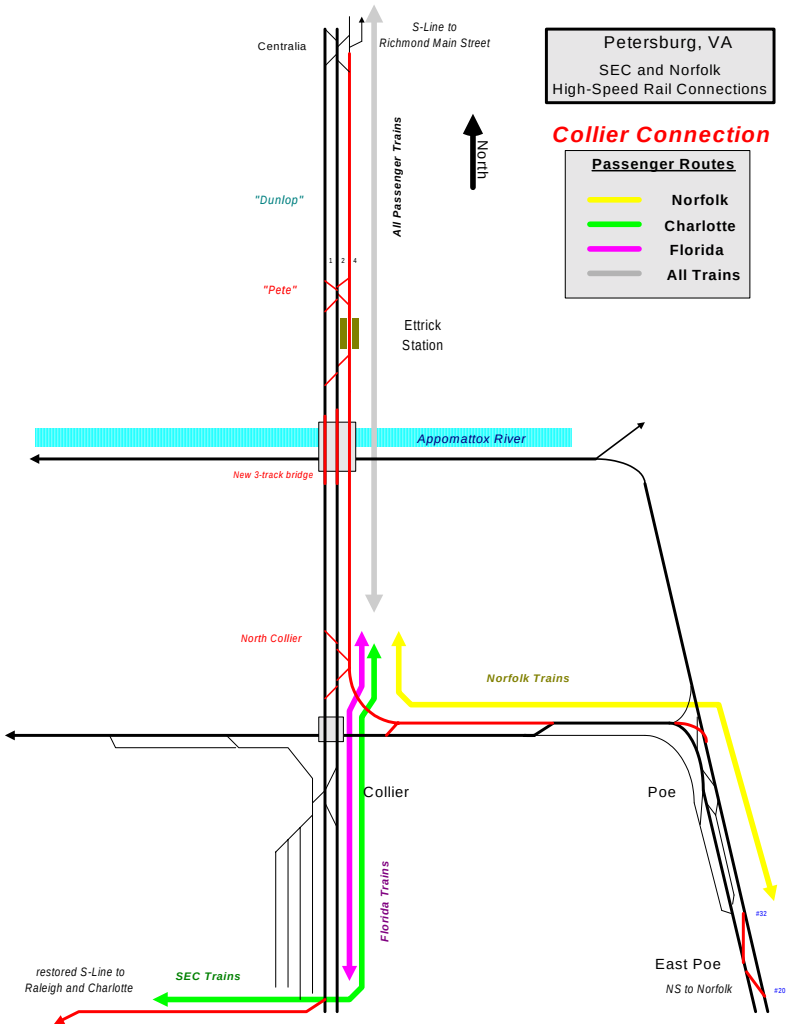
[6] The construction of this third track eliminates the need to rebuild the old S Line between Centralia and Petersburg (Ettrick) previously planned for the *SEHSR Corridor*. The alignment is described in the draft *Potential Improvements to the Richmond – Charlotte Railroad Corridor* Report prepared by PTG for the FRA.

the Belt Line for passenger trains would require an additional track over the segment between North Collier and Poe.

On the other hand, it might be necessary to double-track the Belt Line in order to reduce the need to run freight trains on the Main Line. This would be affected by the level of freight traffic projected, and further study of activity and capacity would be required. Preliminary investigation indicates that the cost of upgrading either line would be approximately the same if double-tracking of the Belt Line were required.

Recently, it has been recommended that the north – south route for A- and S Line trains be revised from that initially recommended in the study prepared for the FRA. Rather than restoring the S Line between Centralia and Burgess, it has been determined that intercity and SEHSR trains would operate on an upgraded A Line through Petersburg, between Centralia and South Collier. Trains for stations on the A Line would continue southward, while S Line trains would utilize a restored Burgess Connection between South Collier and Burgess to access the S Line to Raleigh. Ettrick would remain the location of the intercity passenger station.

Figure 2: North Collier Connection



North Collier Connection

The *North Collier Connection* would involve building a track connection, just north of Collier Yard, in the northeast quadrant from the CSXT A Line to the NS Petersburg Belt Line. This could be the least complicated of the five alternatives to construct, depending on the difficulty in interfacing with the Halifax Road grade separation, currently under construction. Initial investigation indicates that it could be built entirely east of the highway project, but further study is necessary. This connection would allow the continued use of the existing Petersburg passenger station at Ettrick, north of the Appomattox River.

Disadvantages

The connection might be complicated by the interface with the new highway overpass for Halifax Road. The development of the adjacent property is a potential physical impediment. While relatively simple to build, the *North Collier Connection* would require an additional main track on the NS Belt Line between North Collier and

Poe. A new interlocking would have to be built on straight track at East Poe to avoid the need to provide turnouts on the superelevated curve at Poe.

The Secoast Connection

The *Secoast Connection* is a logical outgrowth of the proposed restoration of the S Line for SEHSR service to Charlotte, NC. If the S Line is restored north of Burgess, a connection to the NS Petersburg Belt Line would be made in the northeast quadrant at Secoast, where the S Line would cross over the Belt Line. This concept would require construction of a new bridge over the Appomattox River for the S Line, upstream from the current CSXT A Line Bridge, and restoration of the S Line[7] southward from that point. A connection in the northeast quadrant at the intersection of the S Line and the NS Belt Line would enable South Hampton Roads trains to traverse the S Line from Ettrick to the connection, then use the NS Belt Line to go eastward.

Disadvantages

The connection would take right-of-way from the Virginia State University experimental farm for the connecting track from the Ettrick Station to the bridge. Similar to the North Collier Connection, the Secoast Connection would require the South Hampton Roads passenger trains to utilize the NS's Belt Line. It would require an additional main track on the NS Belt Line between Secoast and Poe. A new interlocking would have to be built on straight track at East Poe to avoid the need to provide turnouts on the superelevated curve at Poe. Furthermore, more of the S Line would have to be restored, including the crossing of Washington Street, and a new Appomattox River bridge that would not be available to A Line trains.

The West Connection

The *West Connection* would connect a restored S Line to the NS Main Line through Petersburg, instead of the Belt Line. A low-level bridge would be constructed for the S Line about one-half mile upstream from the existing A Line bridge, with a low-speed connection to the NS Main Line on an eight-degree curve from the S Line. This connection would retain the existing Ettrick station and would not require changes to CSXT freight and Amtrak long-distance operations south of Petersburg.

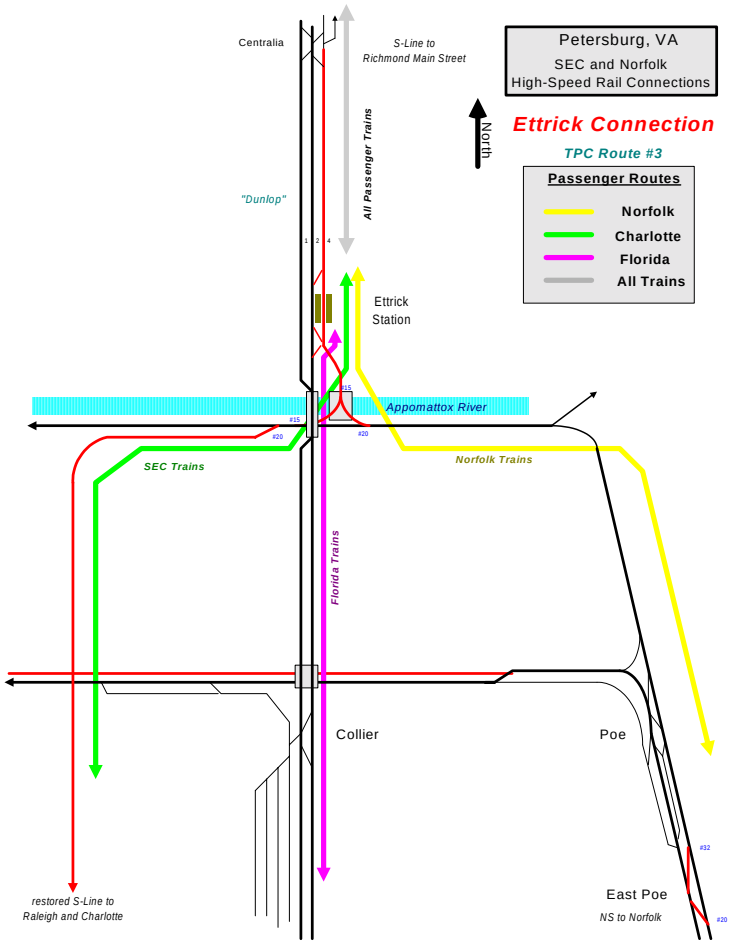
Disadvantages

A bridge that would enable the S Line to go under both the NS Main Line and Washington Street would require a steep approach on the north bank, and a bridge deck that would almost be at the level of the river. The connection would take right-of-way from the Virginia State University experimental farm for the track from the Ettrick Station to the bridge, and would require a 30 foot deep cut through the center of the farm to descend to the level necessary to pass under the NS Main Line. Although the bridge would be lower and less expensive to build than any high level bridge for either the A line or S Line, this would be offset by the need to tunnel under the NS Main Line in order to make the connection to it, and the fact that the bridge over the river would not be available for A Line trains. The connecting track from the S Line onto the NS Main Line would require a sharp, slow speed eight-degree curve. The Bridge over the Appomattox River that would be required for this connection, is located considerably west of the existing CSXT A Line Bridge. It would add about two miles distance over any other South Hampton Roads alternative.

[7] Improvements defined in the draft Richmond to Charlotte Report.

The *West* Connection would require construction of a new platform at the Ettrick Station, for the use of Charlotte and South Hampton Roads trains, as well as a third track. Because South Hampton Roads and S Line trains would use a different platform from A Line trains, underground or overhead passageways and elevators would be required for access. Finally, as with the Secoast Connection, a greater portion of the S Line would have to be restored.

Figure 3: Ettrick Connection



Ettrick Connection

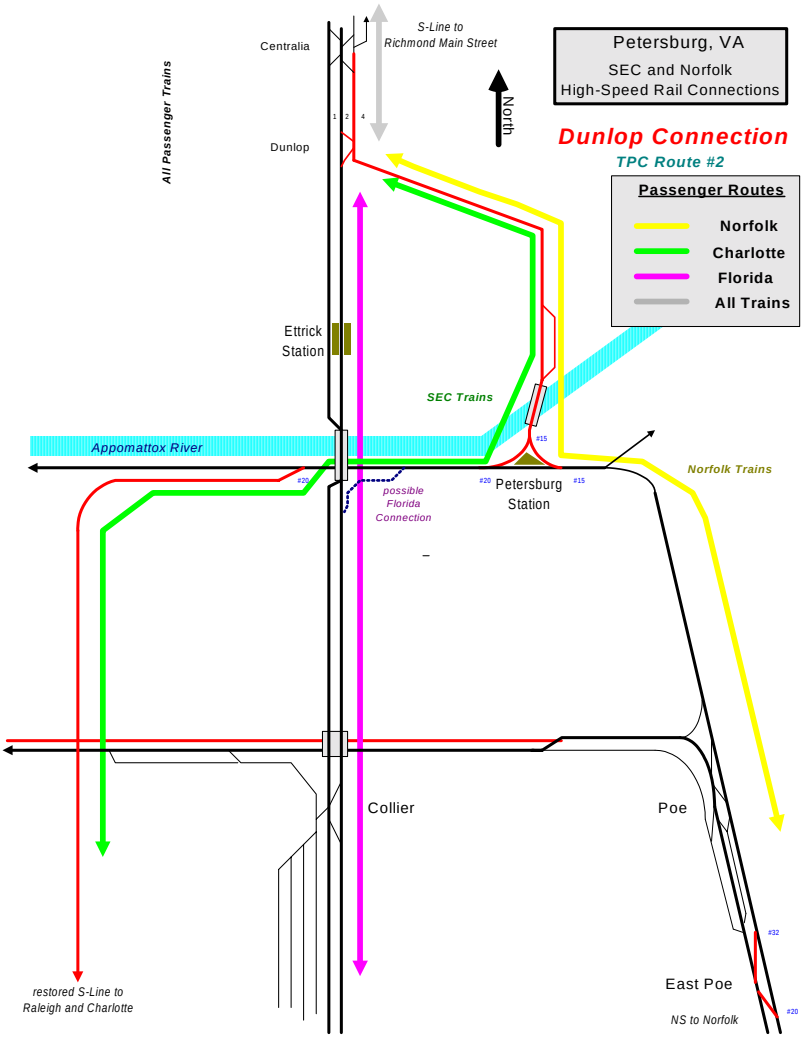
Further consideration resulted in the development of alternatives that would use the NS Main Line, rather than the Belt Line, while simplifying the construction requirements of the connection. The *Ettrick Connection* was developed to retain the operating benefits of using the A Line and the Ettrick Station and the NS Main Line. The *Ettrick Connection* consists of a track on the east side of the A Line, beginning south of Ettrick Station, that descends to the level of the NS Main Line across the Appomattox River. A low level-bridge would be constructed to connect to the NS Main Line, eastward. Optionally, the bridge could provide a Wye connection to the NS Main Line, westward, for Raleigh-bound S Line trains. The *Ettrick Connection* eliminates the need for a more-expensive high bridge, for either the S Line or a multiple track replacement

for the A Line. It retains the existing station, and provides a passenger train route eastward to South Hampton Roads that does not require use of the NS Belt Line.

Disadvantages

The connection would take right-of-way from the Virginia State University experimental farm for the connecting track from the Ettrick Station to the bridge. The size and degree of curvature required to build the connection would require lower speed operations through the approach tracks' curves and switches connecting to the NS Main Line. Should the S Line be included, it must be restored north of Burgess, and construction of a more complex bridge with a "Wye" connection to the NS Main Line in both directions would be required, as well as a grade-separated crossing of Washington Street.

Figure 4: Dunlop Connection



The Dunlop Connection

The last alternative, the *Dunlop Connection*, would involve restoration of the original Atlantic Coast Line Railroad route from Dunlop to Petersburg, including reconstruction of the superstructure of the old railroad bridge over the Appomattox River and restoration of the Wye connection with the NS Main Line. Should the S Line be restored north of Burgess, separate platforms for South Hampton Roads and Charlotte trains would be required along with a connection to the restored S Line from the NS Main Line. Should the A Line trains be routed to the downtown station in Petersburg, construction of The *Battersea Connection*, between the NS Main Line and the A Line, south of the Appomattox River bridge would also be required. This connection would skirt the grounds of the Battersea Mansion, for which the connection has been named, and enable all Amtrak trains to reach a single downtown Petersburg station, permitting the Ettrick station to be closed. If the Battersea Connection should prove to be infeasible, a single station that could serve all trains would have to be located north of Dunlop. The *Dunlop Connection* requires a less-expensive bridge to cross the river, and permits the use of a single passenger station for all Amtrak trains in downtown Petersburg.

Disadvantages

The Battersea Connection would require a tight 5-degree curve and a 1.75-percent grade to connect the NS Main Line to the A Line, limiting speed to 40 mph. The connection would require a bridge over the abandoned S Line and a substantial fill to avoid the mansion.

Development and new highway construction has compromised the alignment in the vicinity of Dunlop. Portions of the old right-of-way have either been sold or have been encroached upon. Community opposition in Colonial Heights and Pocahontas would be likely. A Line and S Line trains would have to operate over a short segment of the NS Main Line, requiring cooperation between CSXT and NS dispatchers.

NS Main Line between Petersburg and Suffolk

The NS Main Line between Petersburg (Poe) and Suffolk (Brico) is the primary location for potential operational conflicts. High-speed passenger trains would be overtaking slower freight trains and a primary goal of the study is that high-speed train operations be transparent to freight train operations. Optimizing the Richmond – South Hampton Roads trip time for passenger rail service on a consistent basis – while preserving and enhancing the dependability of the NS freight operations – would require improvements that would increase rail capacity at strategic locations. Reduced trip times and improved capacity would enable the high-speed service to operate reliably without adversely affecting, or being delayed by the large number of long freight trains.

Three strategies were pursued in designing the plant and operations to minimize the probability of schedule conflicts in this critical segment of the corridor:

1. Create track connections, modify interlockings, and make additional operational improvements that would result in segments of track where freight and passenger train conflicts would be minimized in Petersburg (west end) and at Suffolk (east end);
2. Provide a passing siding of sufficient length in the most effective location—a third track to be used by freights—where a passenger trains could overtake and pass a slower train without either train being required to stop;
3. Design passenger schedules so that trains traveling in opposite directions “meet” in terminals or “pass” at locations where freight operations would not be disrupted.

Petersburg to Poe

Using the NS's Main Line through downtown Petersburg (the West, Dunlop, and Ettrick Connections), permits the high-speed South Hampton Roads trains to avoid the yard operations at Poe, where the Belt Line joins the Main Line. Offsetting this advantage might be the need to construct a second track on the Belt Line, by connecting the existing sidings, to allow NS to avoid using the Main Line. This would create a passenger route through Petersburg having minimal interface with freight operations. The Belt Line would continue to be the primary NS freight line, bypassing downtown Petersburg.

Connecting the A Line to the Belt Line (the North Collier and Secoast Connections) would route high-speed passenger trains through an area of heavy freight activity. It appears that the following would be required:

- an additional main track on the NS Belt Line between North Collier and Poe, and
- a new interlocking built on straight track at East Poe, to avoid the curve at Poe.

Given their higher speeds, passenger trains would occupy the shared, 48.3 mile Poe-Brico main line segment for as little as: 27 minutes at 110 mph; 33 minutes at 90 mph; and 37 minutes at 79 mph. A 45 mph freight train would take 65 minutes to cover this distance.

The high rate of passenger train speed also would mean that any delay to freight trains held up from entering the Poe-Brico segment would be minimal, since the passenger trains would reach the line segment at speed and accelerate away from the freight trains.

Poe Interlocking and Yard

NS has a small yard and a busy automobile unloading facility at Poe, both of which require freight trains to stop and work for substantial time intervals. These freight trains occupy the siding at Poe, and often occupy the eastbound main track. The NS's heavy use of the Belt line, the congestion that arises from trains stopping and working at the CSXT interchange or at Poe Yard, and the possible need to add track capacity to the Belt Line to maintain quality freight service, indicate that an additional track would be needed on the Belt Line, between North Collier and Poe, on which to move passenger trains.

If the passenger trains were operated on the Main Line, a second track on the Belt Line, consisting of the existing sidings connected by additional track, might be required.

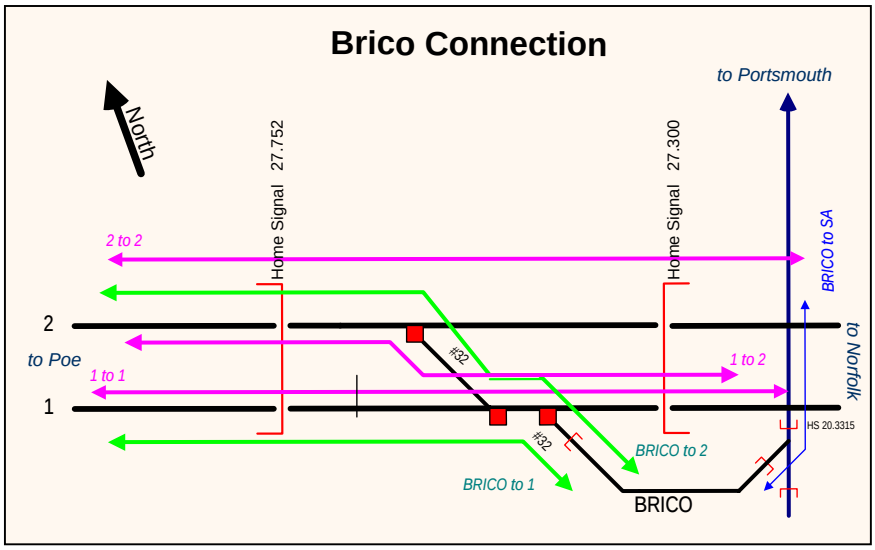
Further study will be necessary to make either of these determinations.

Suffolk to South Norfolk – The Brico Connection

The possibility of establishing high speed passenger service on the CSXT line from Brico to Algren, thence on the former Virginian Railroad (VGN) from Algren to South Norfolk, has been examined as an alternative to avoid the heavily used NS main line wherever possible. This diversion would require a new high-speed connection at Brico, just west of Kilby, VA, west of Suffolk, to connect the NS Main Line with the CSXT Portsmouth Subdivision. This connection would remove the passenger trains from the NS Main Line at this location, enabling them to bypass the terminals and yards at Suffolk and Portlock (South Norfolk).

Located 3 miles west of downtown Suffolk, Kilby is where the double track NS main line crosses over top of the former VGN right of way, as well as the CSXT Portsmouth Subdivision. U.S. Highway 58 crosses over all three railroads on two overhead bridges, at a 90-degree angle to the NS main line. A connection between the CSXT and NS lines exists in the southwest quadrant, but it is of no benefit for passenger train movements between South Hampton Roads and Petersburg. The large earthen fill of approaches to the U.S. 58 highway bridges precludes a potential connection in the preferred northeast quadrant. The recommended alternative is a loop (jug handle) connection in the southwest quadrant from the NS Main Line, from Petersburg, to the CSXT Portsmouth Subdivision, to Portsmouth.

Figure 5: Brico Connection



Access to Norfolk Terminal

The recommended route for the high-speed passenger service into the Norfolk Terminal minimizes conflicts with freight operations inside the busy terminal area by avoiding the NS Main Line in favor of the less traveled CSXT Portsmouth Subdivision and the former VGN line.

The CSXT Portsmouth Subdivision offers a tangent track, with a few easy curves and few grade crossings. The Portsmouth Subdivision intersects the NS's VGN line at Algren.

Bowers Hill Station

The Hampton Roads markets outside of Norfolk and Portsmouth cover a large geographic area and would be best served by a "beltway (suburban)" station with good access to/from the highway system, particularly I-264 and the Hampton Roads Beltway (I-64/664). The benefit to both modes of the interface of rail passenger service and major regional highways has been successfully demonstrated at the New Carrollton, MD station, located north of Washington, DC. The present New Carrollton rail station, constructed in the early 1980s, has proven to be an effective traffic generator.

An analysis of the rail-highway interface has led the study team to conclude that a station located just east of the Algren track connection, at the crossing of Homestead Road, near the Bowers Hill post office, would best serve the projected travel market.

Access to Downtown Norfolk

Operation over the NS's "V-Line" (former Virginian main line) between Algren and South Norfolk separates the passenger operation from the bulk of NS's freight movements on their main line into Norfolk. The single track VGN line between Algren (V15.5) and South Norfolk would require rehabilitation, but is a straight, well-engineered right of way. It includes a draw-span bridge over the Southern Branch of the Elizabeth River, on the Inland Waterway. This is an unavoidable crossing, as the NS Main Line has its own drawbridge over this navigable waterway a few miles further south. At South Norfolk (V2.3), the passenger route would re-enter the NS main track. It is recommended that the passenger route be restricted to the westbound Number 2 main track over Bridge 5 into Norfolk.

South Hampton Roads Passenger Terminal

Alternative Terminal Locations

Downtown Norfolk and Portsmouth are relatively compact markets that could be served by a station located in either one of these areas. The historic N&W Norfolk Terminal station was located in downtown Norfolk, on Water Street near the Eastern Branch of the Elizabeth River. The historic SAL Station building in downtown Portsmouth still exists, however, rail access to the station location is restricted by recent development and passenger access to downtown Norfolk would require a transfer to another mode. Considering that neither site is currently available, it appears that a downtown Norfolk station site near the Harbor Park baseball stadium would be desirable. The proposed location is at the east (compass north) end of Bridge 5, immediately adjacent to the parking lot for the stadium. The site is the closest available location to downtown Norfolk.

The station tracks need to be accommodated in the 1500 feet of space between Bridge 5 and the grade crossing for Park (formerly Lovitt) Avenue. The station could share parking with the stadium, and enjoys good highway access, and public transit services, being served by the downtown bus network and, ultimately, the planned light rail line. The site's singular drawback is its relatively small size, and the inability to provide either a maintenance/servicing facility for Amtrak at the location or a convenient Wye track or turning loop where trains can be "turned" to return to Richmond.

As of this time a location to store and service trains in Norfolk has not been identified. An efficient storage yard and maintenance facility in the vicinity of the proposed Norfolk Passenger Terminal would be necessary to properly clean and inspect trains. Further evaluation of train operations through the area, and potential locations, would be required to finalize the location.

Service Goals

All operators and sponsors—intercity passenger, commuter, and freight operators—intend the services on the Richmond-South Hampton Roads Corridor in the target planning year, 2025, to be operated at higher levels of traffic, and be more reliable than those operating on the Corridor at present. The envisioned mix of services is presented in Table 1 and described below.

Table 1: Railroad Services Envisioned for 2025 on the Richmond–South Hampton Roads Corridor

Service	Route	Number of Daily Train Movements			
PASSENGER		**Richmond to Petersburg**	**Petersburg to Suffolk**	**Suffolk to Bowers Hill**	**Portlock to South Hampton Roads**
Corridor	North Carolina—Northeast Corridor	**8**	**0**	**0**	**0**
Corridor	South Hampton Roads-Richmond/Washington/Northeast Corridor	**12**	**12**	**12**	**12**
Long-distance	Florida—Northeast Corridor	**8**	**0**	**0**	**0**
Auto Train	Lorton, Virginia—Sanford, Florida	**2**	**0**	**0**	**0**
Total Amtrak		**30**	**12**	**12**	**12**
FREIGHT					
Intermodal Trains		**14**	**14**	**0**	**0**
Coal trains + Empties		**12**	**10**	**4**	**10**
General Merchandise Trains		**16**	**10**	**0**	**0**
Local Trains		**4**	**2**	**0**	**0**
Light Power		**0**	**0**	**0**	**20**
Orange Juice		**2**	**0**	**0**	**0**
Trash		**6**	**0**	**0**	**0**
Total CSXT/NS Freight		**54**	**36**	**4**	**30**
GRAND TOTAL Richmond — South Hampton Roads Corridor		**84**	**48**	**16**	**42**

A corridor-type of high-speed intercity passenger train service would be the most appropriate to operate between Richmond and South Hampton Roads. **Train service** reliably linking Richmond (Main Street Station) and South Hampton Roads **in less than 90 minutes** by 2025, with two intermediate stops would satisfy this demand.

The 2025 service would include six daily round trips, including:

- South Hampton Roads - New York trains (four round trips), and
- South Hampton Roads - Washington trains (two round trips).

Hampton Roads service would also include two Newport News – Northeast Corridor trains.

Methodologies

Sources included reports prepared by the FRA, data provided by the Virginia Department of Rail and Public Transportation, filings before the Surface Transportation Board, track diagrams, maps, equipment specifications, and other engineering and ownership documentation. Limited field investigations took place to verify existing conditions. Also, the study team met with appropriate State, local, CSXT, NS, and VRE officials to assess the status of their respective plans, and to assemble a consensus list of possible projects that would assist all operators to meet their service goals.

The analysis compared the services as presently envisioned by the operators for 2025, with the fixed plant as configured today and as upgraded with various carefully ordered combinations of improvements. The analysis focused on two questions:

- Can individual trains meet their trip-time goals, irrespective of other traffic?
- Can all the services operate in combination at intended speeds and schedules over the Corridor, while still meeting their reliability imperatives?

To answer the first question, the study team used a computer model known as a train performance calculator (TPC) to model the operation of a single train, with defined performance characteristics, over a traffic-free railroad with profile, alignment, and maximum speeds as specified for each segment. The train performance calculator was applied to prototypical freight, intercity passenger, and commuter trains, to assess their optimal performance over the Corridor under different sets of conditions. However, it must be remembered that the mere physical possibility of operating a given train over a given right-of-way at a given trip time offers no assurance that a combination of services can reliably operate on the Corridor.

To answer the second question, the study team applied detailed simulations—modeling sophisticated, random variations in operating conditions and performance—to the full spectrum of freight, intercity passenger, and commuter services on the Richmond–South Hampton Roads Corridor. These simulations assessed the impacts of changes in both schedules and fixed plant capabilities on all services operating simultaneously over a hypothetical seven-day test period.

Taken together, the TPC runs and the detailed operating simulations permitted the analysts to compare intended schedules, optimal running times, and expected performance for all services. The effects of alternative schedules and fixed plant capabilities were evaluated through numerous model runs. By these means the study team developed a preliminary list of potential projects and priorities that would meet the trip time and reliability goals of the study. This report synthesizes the results of investigations to date and defines a plan that can serve as a basis for further design, environmental work, and partnership and financial development for the Washington—Richmond Corridor.

Investment Requirements

The analysis yielded a preliminary list of projects that would provide the proposed level of service to South Hampton Roads. This list of projects assumes that the freight railroads, as owners of the fixed plant, will continue to maintain the proposed corridor tracks in the state of good repair that characterizes the main line portions from Richmond to Suffolk to Algren. For that segment, therefore, the investment requirements contained in this report **do not** include replacement in kind of key existing track components (ties, rail, and the like)—in railroad parlance, "program maintenance."

On the other hand, for the segment between Algren and South Norfolk, this report provides for a significant upgrade, with replacement of rails, ties, and other track components to assure safe, expeditious passenger and freight service. Signal investment requirements are subsequently addressed.

This study has emphasized train operations and related facilities, and therefore has confined itself to identifying only a few of the many issues related to stations; cost estimates for all station improvements have not been developed. The corridor partners will, however, need to devote significant resources to this topic if rail service in the corridor is to be optimized. The provision of marketable (and potentially profitable) station facilities, parking, and amenities will merit careful attention and focused investment in the preparation of a development plan for the South Hampton Roads Corridor.

Description Of Improvements

Table 2 provides a preliminary list of projects, and their costs, that would fulfill the service goals of the recommended high-speed rail service. Improvements include the construction of segments of additional track, and the reconfiguration of switching locations (interlockings) to optimize operating flexibility and provide the capability of making simultaneous train crossover movements (parallel moves). This expanded capacity reduces the impact of the projected intercity and commuter passenger service increases, and maintains the quality of freight service on the line, thereby making the increased passenger service attractive to NS and CSXT, the owner/operators.

Table 2: Description of Improvements

Project	Description	Estimated Cost at 79mph[8]	Estimated Cost > than 79 mph[9]
Centralia to Dunlop Third Track	Construct third track east of the present CSXT A Line between Centralia and Dunlop.	**$24.09**	**$24.09**
Dunlop through Petersburg to Poe: Costs of three potential options	Ettrick Connection	**$37.57**	**$37.57**
	Dunlop Connection	**$40.38**	**$40.38**
	Collier Connection	**$82.03**	**$82.03**
NS Petersburg Belt Line, Poe to Jack	Construct second track on Belt Line.	**$21.65**	**$21.65**
NS Main Line: Poe to Brico	Create additional flexibility by the installation of three new, or reconfigured, universal interlockings and a 12.6-mile center siding in this segment of extended tangent track. Interlockings would be located in this track segment at: *East Poe* (N76.1); *Disputanta* (N69.2); *Waverly* (N59.7); *47 Crossover* (N46.8); and *Wight* (N37.3).	**$22.25**	**$49.65**
Brico Connection: NS Main Line to CSXT Portsmouth Sub	Construct a 1.8-mile connection between the NS Main Line and the CSXT Portsmouth Subdivision at Brico (N27.3). Brico Interlocking, at the north end of the connection would enable northbound trains to access both Main Line tracks. A new interlocking on the Portsmouth Subdivision at the east end of the connecting track would enable passenger trains to move from the connecting track to the CSXT Portsmouth Subdivision would be the straight, high-speed route, while a 45 mph route would be provided for CSXT trains.	**$6.09**	**$6.09**

[8] Fully loaded constant 2000 dollars, in millions.

[9] Fully loaded constant 2000 dollars, in millions.

Project	Description	Estimated Cost at 79mph[8]	Estimated Cost > than 79 mph[9]
CSXT Portsmouth Sub and NS Virginian Main: Brico Connection to Bowers Hill Station to South Norfolk	Upgrade the CSXT Portsmouth Subdivision to support high-speed rail service. The 14.6-mile segment would remain single tracked with a 2.3-mile siding at the east end. At Algren the route to the former Virginian Main would be the straight route and the route to Portsmouth would be 45 mph. Upgrade the former Virginian Main to support the proposed high-speed rail service. A 2.3-mile siding would be located west of the proposed Bowers Hill station. The siding was placed to support the meets that occur with the proposed schedules on the single-track in the vicinity of Bowers Hill Station.	**$35.39**	**$35.39**
NS Main Line: South Norfolk to Norfolk	Upgrade the connection from the Virginian to the Main Line – South Norfolk. Revise NS Junction. Construct station tracks in the 1500 feet of space between Bridge 5 and the Park (Lovitt) Avenue grade crossing. Two station tracks would be located adjacent to the Line to the Lamberts Point.	**$5.70**	**$5.70**
Norfolk Passenger Terminal	Station platforms would be located on the west or downtown Norfolk-side of the double-track NS Lamberts Point Line. The platforms would be located adjacent to the station tracks.	**$10.00**	**$10.00**
Ettrick Station	Revise Ettrick Station to accommodate third track and revised operation	**$4.37**	**$4.37**
Bowers Hill Station	A single-track beltway station would be located at Bowers Hill, about two miles east of Algren.	**$4.3**	**$4.3**

Project	Description	Estimated Cost at 79mph[8]	Estimated Cost > than 79 mph[9]
Maintenance Facility: Norfolk	Construct an efficient storage yard and maintenance facility in the vicinity of the Norfolk Passenger Terminal to ensure that passengers are provided safe, reliable, and clean trains. Provide sufficient yard storage capacity to handle overnight layovers for trains scheduled to depart Norfolk the next day, and to store equipment to be maintained. Further evaluation of train operations through the area and potential locations would be required to finalize the location.	**$0.0**	**$0.0**
Signal System Upgrade	Upgrade the signal system to efficiently handle increased train traffic on the Corridor and to permit improved intercity passenger service with greater safety. These improvements also would enable freight service to safely and efficiently operate on the same tracks. A cab signal system (necessary to operate passenger trains at speeds greater than 79 mph), a new block layout, and new signal aspects would be incrementally installed to accommodate speeds up to 110 miles per hour[10]. Block spacing would anticipate increased train speeds. Reverse signaling would be installed throughout the corridor.	**$16.98**	**$16.98**
Diesel Locomotive Upgrade	The installation of cab signals would require that all NS and CSXT locomotives operating on the South Hampton Roads corridor be equipped with Automatic Train Control (ATC).	**$0.0**	**$20.00[11]**
Intercity Rail Fleet	The passenger equipment to be utilized would be compatible with SEC operations as well as NEC electrified operations north of Washington – a locomotive change would be required at Washington.		
TOTAL	**Total corridor improvements using the Ettrick Connection in Petersburg. Does not include storage facility or passenger equipment requirements.**	**$188.39**	**$235.79**

[10] The braking distance for a 110 mph passenger train is essentially equal to that of a 60 mph freight train.

[11] Assumes 250 locomotives, actual number not available.

Ridership And Revenue Forecasts

The ridership and revenue forecasts for rail service from Richmond to South Hampton Roads were developed using information originally assembled for the Southeast High Speed Rail Study in 1996 and recently updated by AECOM for the North Carolina DOT and Amtrak. In addition, data from the 1996 Hampton Roads Crossing Study were obtained from VDOT to supplement the Southeast HSR study travel base.

The model used for this analysis is an adaptation of a spreadsheet model that has been used in many applications for Amtrak and Georgia and North Carolina DOT's to evaluate intercity rail alternatives. The spreadsheet models were developed based market research and physical data such as highway networks, socio-economic variables, and service characteristics of public modes.

The study team examined nine service alternatives for passenger rail service to Norfolk along the existing CSXT lines from the existing Richmond- Staples Mill station through Richmond's Main Street station to Petersburg, then along the Norfolk Southern line from Petersburg to Norfolk. The alternatives vary with speed (79 mph to 110 mph) and frequency (one to six daily round trips). The exhibit below provides a summary of the alternatives operating characteristics between Newport News / Norfolk and the Richmond Main Street Station.

Table 3: Alternative Specification Summary

Alternative	Maximum Allowed Speed*	Frequency		Travel Time	
		Newport News – Richmond	Norfolk-Richmond	Newport News – Richmond	Norfolk-Richmond
BASE	79 mph	2	0	1:30	
1	79 mph	2	1	1:30	1:43
2	90 mph	2	1	1:30	1:35
3	79 mph	2	2	1:30	1:43
4	90 mph	2	2	1:30	1:35
5	79 mph	2	4	1:30	1:43
5A	79 mph	4	4	1:30	1:43
6	90 mph	2	4	1:30	1:35
7	110 mph	2	4	1:30	1:26
8	110 mph	2	6	1:30	1:26

* between Richmond and Norfolk only; speeds between Richmond and Newport News remain at a 79 mph maximum allowed speed in all alternatives

Ridership and revenue forecasts were prepared for each of the nine alternatives for forecast years of 2010 and 2025. A summary of forecast results for 2025 are included in the table below. The trips reported in the table correspond to trips between Hampton Roads, Petersburg, Richmond, Washington DC, and the Northeast Corridor.

The forecast results show a consistent increase in performance measures as the speed and frequency of service increases. The low frequency alternatives have low incremental ridership gains because the new service does not provide a significant improvement over the existing Newport News service. As the speed and frequency of the South Hampton Roads service increases the incremental ridership and revenue increase significantly.

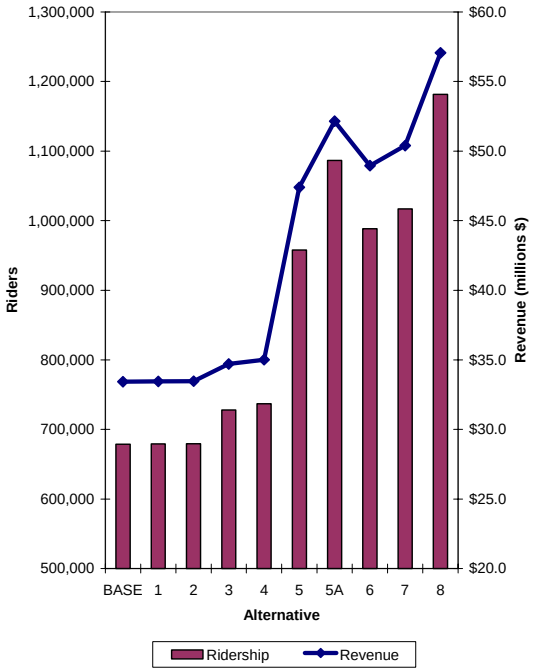
Table 4: Summary of Forecast Results for 2025

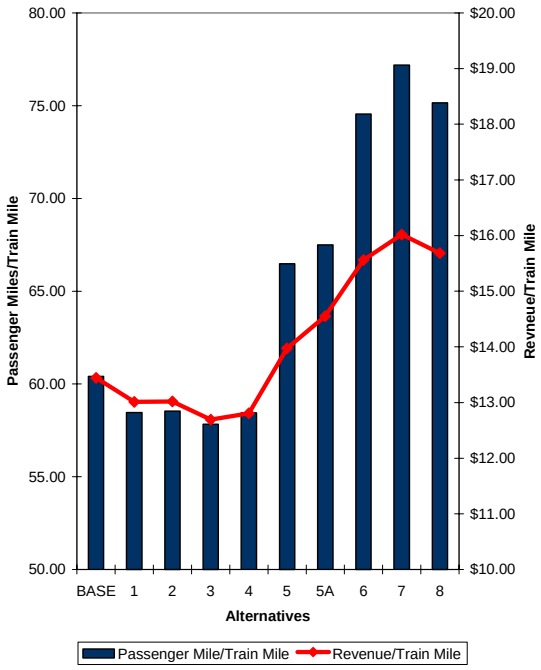
Alt	Total Riders	Total Revenue (millions $)	Passenger Miles (millions)	Train Miles (millions)	Revenue/ Train Mile	Pass Mi/ Train Mile
Base	678,700	$33.430	150.200	2.486	$13.45	60.4
1	679,100	$33.450	150.260	2.570	$13.01	58.5
2	679,500	$33.460	150.450	2.570	$13.02	58.5
3	728,000	$34.700	158.110	2.734	$12.69	57.8
4	737,000	$35.010	159.800	2.734	$12.81	58.5
5	957,800	$47.390	225.420	3.391	$13.98	66.5
5A	1,086,600	$52.150	241.940	3.584	$14.55	67.5
6	988,400	$48.960	234.530	3.146	$15.56	74.5
7	1,017,000	$50.400	242.860	3.146	$16.02	77.2
8	1,181,500	$57.060	273.420	3.638	$15.68	75.2

It is important to note that the ridership and revenue increase at a faster rate than train miles for most of the higher frequency and speed alternatives. The following charts display forecasted riders and revenue and passenger miles and revenue per train mile. These charts illustrate the benefit of faster and more frequent service. Revenue per train mile increases from the base in all alternatives except for alternatives with low frequency. Passenger miles per train mile also generally increase after falling slightly in the low frequency alternatives.

The slightly lower performance of Alternatives 3 and 4, relative to Alternatives 1 and 2 as well as Alternative 8, relative to Alternative 7, reflects the diminishing return of additional frequencies as the timetable of trains expands. Because of the more than seven (7) hour running time between Norfolk and New York, it is not practical for all of the new Norfolk train frequencies operate north of Washington – they would depart or arrive at the end point station at a poor time of day and/or conflict with other Northeast Corridor operations. This is the case with the additional frequency provided in Alternatives 3 and 4 and one of the two additional frequencies provided in Alternative 8.

Table 5: Forecast Results and Performance Measures for 2025

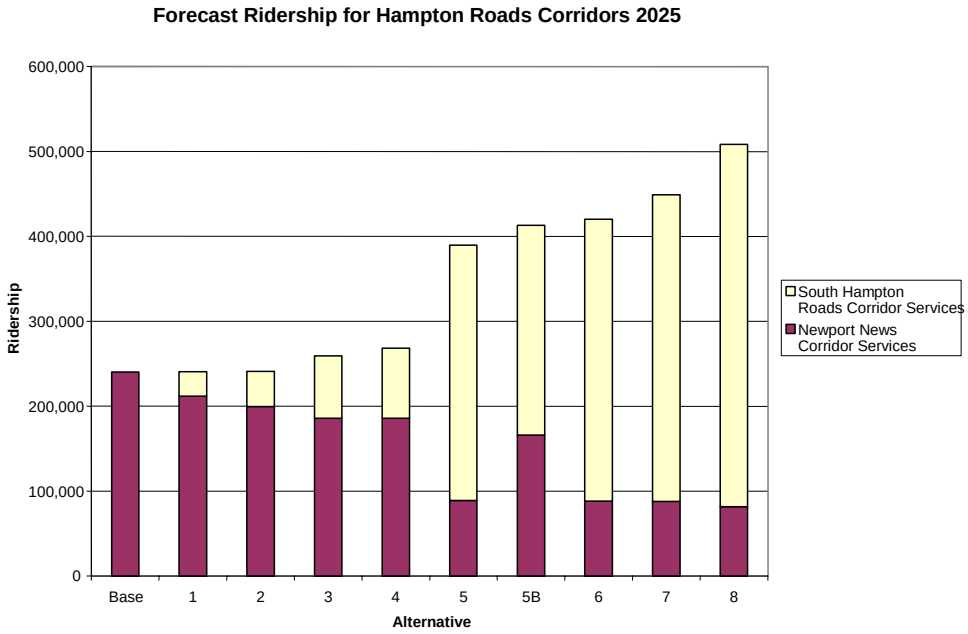




The next exhibits show ridership and revenue to/from the Hampton Roads area, served by the existing Newport News/Williamsburg corridor services and the new South Hampton Roads corridor service. As these exhibits show, there is an overall increase in ridership and revenue to/from the Hampton Roads area as the combined service frequencies and travel times improve across the service alternatives. Similarly, the exhibit shows the increasing diversion of ridership/revenue from the Newport News/Williamsburg corridor services, as passengers shift to the improved frequencies and travel times along the South Hampton Roads corridor service to/from Richmond and point north.

Table 6: Hampton Roads Rail Ridership and Revenue for 2025

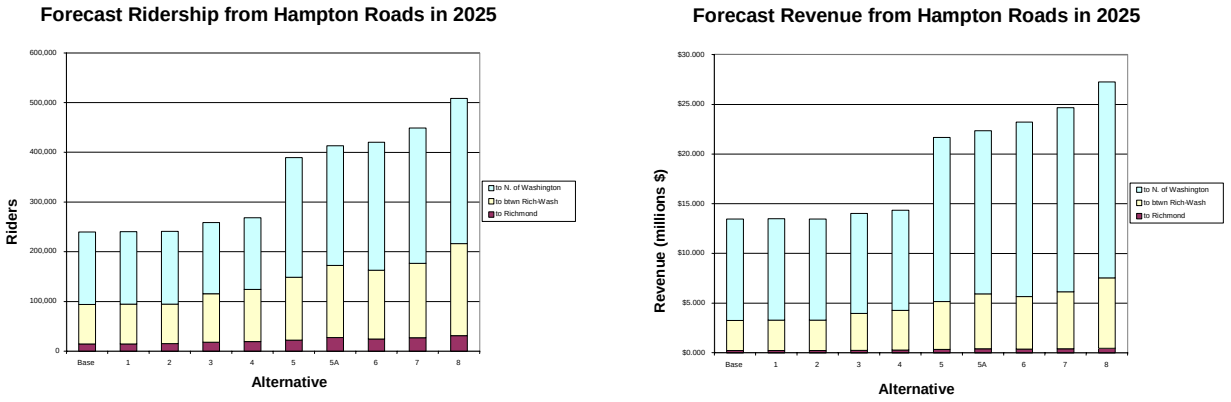
Alt	Newport News / Williamsburg Corridor Services		South Hampton Roads Corridor Services		Hampton Roads Total	
	Riders	Revenue (millions$)	Riders	Revenue (millions$)	Riders	Revenue (millions$)
Base	240,200	$13.460			240,200	$13.460
1	211,800	$12.460	28,800	$1.020	240,600	$13.480
2	199,500	$11.970	41,500	$1.510	241,000	$13.480
3	185,900	$11.380	73,300	$2.650	259,200	$14.030
4	185,900	$11.380	82,300	$2.960	268,200	$14.340
5	89,000	$4.870	300,800	$16.780	389,800	$21.650
5A	166,100	$9.190	247,100	$13.150	413,200	$22.340
6	88,200	$4.840	332,200	$18.380	420,400	$23.220
7	88,000	$4.830	361,000	$19.830	449,000	$24.660
8	81,800	$4.590	426,300	$22.660	508,100	$27.250



Another important characteristic of the Hampton Roads area ridership and revenue forecasts is their north-end origin-destination. The exhibit below provides a graphical

illustration of the relative significance of Hampton Roads ridership and revenue to/from Richmond, points north of Richmond to as far as Washington, and points north of Washington. As the exhibits show, very little Hampton Roads ridership and revenue is associated with travel to/from Richmond and, as in the base, most ridership and, in particular, revenue is associated with trips to/from points beyond Washington.

Table 7: Relative significance of Hampton Roads ridership and revenue to/from Richmond, points north of Richmond



The next exhibit summarizes the total ridership and revenue forecasts for each of the alternatives including the above figures for the Hampton Roads area as well as impacts between Petersburg/Richmond and points north. As the exhibit shows, ridership and revenue also increase as new frequencies are introduced at Petersburg and, in some alternatives, Richmond.

Table 8: Hampton Roads, Richmond, and Other Markets Rail Ridership and Revenue for 2025

Alt	Hampton Roads		Richmond/Petersburg & markets to the north		Total	
	Riders	Revenue (millions$)	Riders	Revenue (millions$)	Riders	Revenue (millions$)
Base	240,200	$13.460	438,500	$19.970	678,700	$33.430
1	240,600	$13.480	438,500	$19.970	679,100	$33.450
2	241,000	$13.480	438,500	$19.970	679,500	$33.460
3	259,200	$14.030	468,800	$20.670	728,000	$34.700
4	268,200	$14.340	468,800	$20.670	737,000	$35.010
5	389,800	$21.650	568,000	$25.740	957,800	$47.390
5A	413,200	$22.340	673,400	$29.810	1,086,600	$52.150
6	420,400	$23.220	568,000	$25.740	988,400	$48.960
7	449,000	$24.660	568,000	$25.740	1,017,000	$50.400
8	508,100	$27.250	673,400	$29.810	1,181,500	$57.060

Initial Overview Of Environmental Constraints

Because the alternatives under consideration are located almost entirely within existing or abandoned rail rights or way, environmental impacts are anticipated to be minimal. Limited environmental documentation should be required for most of the corridor. Categorical Exclusions should be sufficient in areas that are free of environmental constraints and where only operating changes or minor capital improvements within existing rights-of-way are proposed. In many segments of the corridor, environmental constraints may be present within the buffer analyzed, but the use of only existing tracks would also limit the need for extensive environmental documentation. More detailed environmental analyses would have to be completed to determine the full level of documentation required.

A summary of the environmental resources and potential constraints within the 300-foot buffer of the proposed HSR right of way is provided in Table 9 The resources included in this summary table would not necessarily be affected by the construction and implementation of HSR between Richmond and South Hampton Roads.

Several geographic areas of environmental concern where more detailed environmental documentation is expected to be necessary have been identified. The areas of environmental complexity where there is a potential for environmental impacts or difficulty in obtaining permits include:

- Crossing of the Appomattox River at Petersburg – New bridges would be required for all connections. The construction of the new bridges could permanently alter floodplains and historic districts and temporarily impact aquatic habitats in the Appomattox River. Further investigation would be necessary to determine the nature and degree of these effects. The Dunlop Connection would also require construction of a connection within the boundaries of the Battersea Historic District for Florida-bound trains.
- Brico Connection – New construction would be required for the connection of the existing Norfolk Southern (NS) line, which runs northwest-southeast, to the CSXT line, which runs west-east at its junction with the NS line. This connection may displace wetlands and residences near Kilby.
- Waverly – provisions of service and potential for noise and vibration impacts to residential areas adjacent to the railroad and low-income or minority populations that may be disproportionately affected.
- Station Construction at Bowers Hill – Although construction would avoid most environmental resources, there are potential impacts on traffic, public safety, and the nearby Great Dismal Swamp National Wildlife Refuge and the Hampton Roads Wetland Mitigation Bank.
- Crossing of the Great Dismal Swamp National Wildlife Refuge– the potential for noise or vibration impacts in close proximity to a significant natural resource, 4(f) property, and sensitive habitats that support rare, threatened, and endangered species.
- Noise Impacts in Chesapeake and South Norfolk – as the corridor approaches the cities of Chesapeake and Norfolk, several neighborhoods and residential areas are in close proximity to the tracks. Noise studies would be necessary to determine any effects.

Table 9: Summary Matrix of Environmental Resources and Constraints Assessed Within 300 Feet of the HSR Right of Way

Number of Existing Resources and Potential Constraints	**HSR Corridor with Dunlop Connection**	**HSR Corridor with Ettrick Connection**
Noise-Sensitive Receptors[1]	8	8
Stream Crossings	29	29
Wetlands (ac)	576.6	584.4
Floodplain Crossings	27	27
Threatened and Endangered Species	34	34
Wildlife Refuges	1	1
Traffic (total number of road crossings)	129	133
Above-Grade Crossings	25	24
At-Grade Crossings	98	101
Below-Grade Crossings	6	8
Community Facilities and Services (Total Resources)	19	19
Schools	2	3
Religious Institutions	6	5
Cemeteries	5	5
Airports	1	1
Landmarks	4	4
Parks and Recreational Areas	1	1
Transportation (bus) terminals	0	0
Government/Municipal Buildings[2]	0	0
Historic & Archaeological Resources[3]	4	5
Hazardous Waste Sites[4]	16	16

[1] Number of Category 3 receptors within 150 feet of existing lines.
[2] Including Town Capital Buildings, Town Halls, Courthouses, Libraries, Police, Auditoriums, Police Stations, Fire/Rescue Stations, Hospitals.
[3] Listed on or eligible for listing on the National Register of Historic Places.
[4] Located within 2 miles.

Additional environmental analysis would be needed to determine the interactions of the proposed corridors and these environmental constraints. Limited environmental documentation may be required if changes to existing railroad rights-of-way to implement the proposed rail service are minimal. However, from an overview perspective, the locations listed above could have the most complex environmental

issues within the corridor. Once more detailed design information is available, further environmental information would be prepared to determine the significance of impacts. None of these concerns, however, represents a "fatal flaw" for the Richmond to South Hampton Roads HSR.

Conclusions

This analysis of current and projected railroad operations and facilities on the Richmond–South Hampton Roads Corridor has led to the following conclusions:

- **Feasibility of high-speed service:** Reliable high-speed passenger train service between Richmond and South Hampton Roads is a feasible goal **provided** that requisite infrastructure improvements are constructed.
- **Travel Times - Richmond to South Hampton Roads:** Scheduled trip times, Main Street Station to Norfolk terminal, decreases as the maximum authorized speed increases, ranging from 1-hour 43 minutes at 79 mph, to 1-hour 35 minutes at 90 mph, to 1-hour 31 minutes at 110 mph. Travel times between Richmond and Newport News, at 79 mph, is 1-hour 30 minutes.
- **Total Trips – South Hampton Roads to Richmond to Washington to Northeast Corridor:** Total trips increase significantly as the maximum speed and frequency of South Hampton Roads service increase. By the year 2025 Newport News-only service, without speed or frequency increases, would total 213,500 passengers annually. The addition of the South Hampton Roads service would increase the annual ridership to 492,100.
- **Protection of all freight and passenger services:** Computerized simulations of the operations of all users of this Corridor (freight and Amtrak) have identified a number of specific infrastructure changes that would provide the capacity to reliably handle all existing and projected services. Even with these changes, close scheduling and dispatching coordination among operators—extending to the Washington - Richmond and Richmond - Raleigh Corridors and other contiguous routes—would be necessary to optimize the use of the improved facility and preserve the dependability and marketability of all passenger and freight operations.
- **Need for further analysis:** Between Newport News and Richmond, on the existing CSXT line, the affect on ridership of altering service frequency, increasing maximum authorized speeds, and providing sufficient capacity to reliably operate the enhanced service, should be evaluated to assist in the prioritization of passenger rail funding in the Richmond to Hampton Roads corridor.
- **Need for further engineering:** Further detailed engineering would be needed to verify the constructibility of the various improvements, particularly for three challenging areas: the changes required through Petersburg, the track connection at Brico, and the station and track changes required between Algren and the proposed South Hampton Roads terminal station in Norfolk.
    - **Preferred Route Through Petersburg – Florida and SEHSR Raleigh and Charlotte trains:** Recently, it has been recommended that the north – south route for these intercity and high-speed trains be revised from that initially recommended in a study prepared for the FRA. Rather than restoring the S Line between Centralia and Burgess, it has been determined that intercity and SEHSR trains would operate on an upgraded A Line between Centralia

and South Collier. Trains destined for points on the A Line would continue southward, while S Line trains would utilize a restored Burgess Connection between South Collier and Burgess to access the S Line to Raleigh. Ettrick would remain the location of the intercity passenger station.

- **Preferred Route Through Petersburg – South Hampton Roads trains:** There are three options that appear to justify further study:
  1. Dunlop connection
  2. Ettrick connection
  3. North Collier connection

  Each of these options possess positive attributes, but each raises concerns in terms of cost, circuity, and station location. If there is to be one station, the more direct the route to South Hampton Roads, the more circuitous the routes to the south, and vice versa. For example, a downtown Station would require A and S Line trains to use connections from the NS Main Line to continue south.

  If a new high bridge, and a direct route to Collier is selected for SEHSR, The South Hampton Roads alternatives might require either:
  1. Dunlop connection - a separate station,
  2. Ettrick connection - a separate bridge, or
  3. North Collier connection - avoiding the Halifax Road overpass at North Collier, an additional main track on the NS Belt Line between North Collier and Poe, and a new interlocking East Poe to avoid the need to provide turnouts on the superelevated curve at Poe.

  The *Dunlop Connection* and the *Ettrick Connection* fulfill the planning requirements to reduce passenger train conflicts with NS freight operations in Petersburg, but each requires an additional Appomattox River Bridge. Although the Dunlop Connection requires a less-expensive bridge, it requires a restored right of way (that raises substantial neighborhood issues), and a second station (if the other trains continue to use a station on the A Line. The *North Collier Connection* can overcome conflicts with freight operations only at greater expense to provide some additional trackage and interlocking improvements. Further study is required to determine the extent of these tradeoffs.

- **Necessary commitments of the involved parties:** Implementation of the development concept, described in this report, for the Richmond–South Hampton Roads Corridor will require:
  - The commitment of the Commonwealth of Virginia, and other affected parties to obtain funding for the recommended improvements, to progress the necessary engineering work on a timely basis, and to arrange for any needed environmental/historic documentation; and
  - Officials of the Commonwealth of Virginia, the freight railroads, and local governments to close or upgrade as many highway-rail grade crossings as possible on this route.

Cooperation of all parties is essential if the benefits of high-speed rail service are to be achieved.

Appendix A

COMMENTS AND LETTERS

NORFOLK SOUTHERN

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215 209-4285

Bill Schafer
Director Corporate Affairs
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February 20, 2002

Mr. Alan Tobias
Rail Passenger Project Manager
Virginia Department of Rail and Public Transportation
1313 East Main Street, Suite 300
Richmond, VA 23218-0590

Dear Alan:

This letter follows the January 24, 2002 meeting of the Technical Advisory Committee for the South Hampton Roads High Speed Rail Study, which was held at the Virginia Diner in Wakefield. At that meeting, Norfolk Southern raised a number of questions concerning the Study's omissions and understatements. As you requested, we are sending our concerns to you in this letter.

This Study, as with all studies of emerging high-speed corridors, is conceptual. By this we mean that no funding exists for implementation. Until serious money develops to construct infrastructure, we at Norfolk Southern will continue to regard this and all similar studies as hypothetical exercises.

Even so, the Study should attempt to put a realistic cost on implementing high-speed rail passenger service between Petersburg and Norfolk. Understating the cost misleads our decision makers and it places Norfolk Southern in the unfair position of appearing to hype the cost of a project.

We are not hyping the cost of the project. We are asking the Virginia Department of Rail and Public Transportation (VDRPT) and its consultant, Parsons Transportation Group (PTG), to include costs and factors that so far have been understated or omitted.

Any further studies will certainly need to include these costs, so it's better to acknowledge them now than to surprise everyone unpleasantly in the future.

Specifically, the cost estimates (which were distributed at the January 24 meeting) for preparing Norfolk Southern's line for 110 mph operation between Petersburg and Norfolk do not appear to consider key items, including the following:

Cab signals - under federal law, our freight locomotives must be outfitted with this equipment if passenger trains operate in excess of 79 mph. The cost of equipping our locomotives will be borne by the high-speed rail (HSR) project. The draft Study did not include a cost for this equipment.

Grade crossing improvements - in previous comments to VDRPT and to PTG, we have stated our requirement that all grade crossings over which passenger trains operate in excess of 79 mph must have active warning devices or must be closed. We do not believe that these extra costs are included in the draft Study.

Additional mainline track - in the past, we have stated unequivocally that NS requires any passenger train operating above 90 mph to do so on separate, dedicated tracks. The cost of constructing and equipping such a track is not included in draft Study.

Compensation for use of private property - the draft Study makes no acknowledgement that NS must be compensated for the use of its asset. This compensation includes use fees, additional maintenance costs, and purchase or lease of right-of-way, among other considerations.

Dispatching - NS will continue to dispatch all tracks over which its freight trains operate after inauguration of passenger service.

Transparency - while this word is mentioned in the draft Study, it is not defined. Norfolk Southern will consider passenger train operation only if it is "transparent" to freight operations. We define transparency as the provision of sufficient infrastructure for passenger trains and freight trains to operate without delay to either, and to allow for the growth of both.

Delay to freight trains - the draft Study acknowledges that delay to freight trains would be "minimal". We have maintained all along that delay to freight trains is not acceptable, however minimal.

Liability - no one has begun to address this issue. Indemnifying Norfolk Southern for 110 mph passenger operation will open a whole new universe for our respective attorneys to explore. Based on our experience with commuter authorities, the cost to the passenger carrier of indemnifying NS will be substantial.

Railroading is expensive. 110 mph railroading is very expensive. As the ridership analysis presented in the draft Study indicates, huge growth occurs with increases in frequency, not speed. The implication is that four round trips a day at 79 mph are more cost-effective than four round trips a day at 110 mph.

As always, Norfolk Southern continues to be receptive to discussions of passenger service -- including projects such as South Hampton Roads HSR -- as long as the discussions remain realistic and include our concerns.

Sincerely,

Bill Schafer

Bill Schafer
Director - Corporate Affairs

Cc: Mike Holowaty, Parsons & Transportation Group

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April 18, 2002

Mr. Alan C. Tobias
Rail Passenger Project Manager
Virginia Department of Rail and Public Transportation
1313 East Main Street
Suite 300
Richmond, VA 23218-0590

Dear Alan:

We have reviewed the April 2002 draft executive summary of the Richmond to South Hampton Roads High-Speed Rail Feasibility Study. As with the previous drafts of this Study, we continue to be dismayed that many of our suggested changes have not been acknowledged or incorporated.

As a starting point, the Study should incorporate all of the principles outlined in our April 17, 2002 open letter to "Planners of Passenger Train Projects" (attached). Most of these principles have been communicated to you a number of times in the past.

Norfolk Southern is the owner of much of the right-of-way over which the proposed passenger trains will operate, and we do not agree with some of the findings and recommendations in the Study. We suggest the following changes:

- Page 6 -- the section pertaining to "Highway-Railroad Grade Crossings" should state that any corridor over which passenger trains operate in excess of 79 mph will be "sealed", as is being done between Charlotte and Greensboro, North Carolina. For further information on "sealed corridors", please contact Paul Worley at North Carolina's Department of Transportation.

- Page 7 ("Freight") -- we prefer the following wording in the second paragraph (changes shown in italics): "For example, unit trains of coal and grain generally have a lower horsepower-to-tonnage ratio and *slower acceleration/deceleration characteristics* than more time-sensitive operations. Thus, a general merchandise or intermodal train ordinarily takes less time to *travel* a given route segment than a unit train."

- Page 16 ("Petersburg to Poe") -- we suggest changing the wording in the fourth paragraph to indicate that passenger trains operating in excess of 90 mph will require their own dedicated tracks, and in the fifth paragraph to indicate that "sufficient capacity must be provided to avoid delay to freight trains entering the Poe-Brico segment."

- Page 18 ("Access to Downtown Norfolk") -- we request that you indicate that a third mainline be provided from South Norfolk to east (geographic north) of Bridge 5 to retain the present two-track mainline capacity for exclusive freight use.

- Pages 21-22 ("Investment Requirements") -- it is okay to assume that Norfolk Southern will maintain its existing mainline tracks to FRA Class 4 standards. Additional costs, such as upgrading and adding tracks and signals for passenger operations and maintaining them to higher passenger standards, will be borne entirely by the passenger operators.

- Page 22 ("Description of Improvements") -- please change the wording in the last sentence to read: " . . . thereby making the increased passenger service *acceptable* to NS and CSXT, the owner/operators".

- Page 23 (Table 2: Description of Improvements) -- under "NS Main Line: Poe to Brico", sufficient funds should be shown here for separate mainline tracks that will be needed if passenger train speeds exceed 90 mph. Additional costs that are not part of the total but should be mentioned include:

    - Reconnecting and restoring to service Bridge 5A in Norfolk
    - Service tracks and turning facilities for the passenger trains

- Page 25 (Table 2) -- under "Signal System Upgrade", this item is greatly understated because it does not acknowledge the additional passenger tracks that Norfolk Southern will require if passenger train speeds exceed 90 mph. No signal system permitting passenger trains and freight trains to operate on the same track where passenger train speeds exceed 90 mph is acceptable to Norfolk Southern. This has consistently been our position in our previous comments to you on this issue. Under "Total", the following wording should be added: "Does not include storage facility or passenger equipment requirements *or upgrades necessary for 110 mph operation or use fees paid to right-of-way owners."*

- Page 33 (Conclusions - Protection of all freight and passenger services) -- this section should state that the right-of-way owners are the final arbiters of the capacity needed to accommodate the proposed passenger services, irrespective of the findings of consultant's computer simulations.

Please contact me if you wish to discuss any of these issues further.

Sincerely,

Bill Schafer

CC: Jim McClellan
Bruce Wingo
Gordon Mott - CSXT

NORFOLK SOUTHERN

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Bill Schafer
Director – Corporate Affairs
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April 17, 2002

To Planners of Passenger Train Projects:

Norfolk Southern welcomes the opportunity to work with state departments of transportation, high-speed rail advocates, and transit and commuter authorities to develop new or additional passenger rail services. We look forward to moving your projects forward as long as they remain realistic and include our concerns.

Because of the popularity of passenger train proposals, we believe that you should be aware of some of the principles that will underlie any discussions we hold with planners. These principles are intended to protect our "factory", which is the track and right-of-way needed to produce our product – the present and future transport of freight – and to protect the interests of our owners and employees. We foresee major segments of our business – particularly the movement of truck trailers and containers – growing significantly in the coming years as highways become more congested.

These principles refer only to conventional intercity or commuter passenger services and high-speed rail projects. Additional conditions will apply to light rail and other public transit ventures. To discuss any of the following issues further, please call me at the number above.

CONVENTIONAL AND HIGH SPEED PASSENGER

Passenger studies of emerging corridors by definition are conceptual. By this we mean that no funding exists for their implementation. Until serious money is available to construct infrastructure, we at Norfolk Southern will continue to regard passenger studies as hypothetical exercises.

Studies should put realistic costs on implementing rail passenger service. Understating costs misleads decision-makers and it places Norfolk Southern in the unfair position of appearing to inflate the costs of a project. Far from overstating costs, we ask public agencies and their consultants to include costs and factors that will be required, but are frequently understated or overlooked. Let's include items we know will be necessary to passenger rail now to avoid surprising everyone unpleasantly in the future.

Studies must acknowledge that NS owns its corridors and is entitled to fair compensation for their use. We maintain them and we pay taxes on them. Please don't assume that the use of our capacity and our asset is "free". Instead, please acknowledge in your studies and reports that we are entitled to a fair return if you want to use the corridor for passenger trains.

We will require new passenger train service to pay higher use fees than Amtrak pays today. Please do not use "Amtrak incremental cost" factors in estimating the operating costs of new passenger services. Amtrak was entitled to special rights in return for relieving the freight railroads of intercity passenger train operation over thirty years ago. There is no relationship between the Amtrak rates and a fair, commercial return for use of private assets.

Passenger train operation must be "transparent" to our freight operations. We define transparency as the provision of sufficient infrastructure for passenger trains and freight trains to operate without delay to either, and to allow for the growth of both.

Delay to freight trains by passenger trains, however minimal, is unacceptable. Sufficient infrastructure must be furnished so that each type of train can operate without getting in the other's way. The common assumption that a proposed passenger train will impose "minimal interference with freight operations" is a non-starter.

Liability will be a major issue. Based on our experience with commuter authorities, the cost to the passenger carrier for indemnifying NS is substantial. We will accept no new or expanded passenger operations without adequate liability protection.

Cab signals for freight locomotives will be required if the top speed for passenger trains is above 79 mph. Be prepared to equip the NS freight locomotive fleet with additional cab signal and other safety apparatus, and to pay for and maintain any additional signal infrastructure required by speeds in excess of 79 mph.

Dispatching will remain with NS for all trains operating over NS tracks after inauguration of passenger service.

HIGH SPEED CORRIDORS

High-speed corridors require careful planning. If the federal government designates a corridor as "high speed", NS will automatically assume that mainline tracks dedicated solely to high speed trains will someday be built in the same corridor as our existing mainline tracks. Provisions must be made for the separate high-speed tracks throughout the corridor, especially in urban areas. Highway or railroad overpasses/underpasses, when built with public funds, must allow space for the additional tracks.

NS will require dedicated tracks for passenger trains operating in excess of 90 mph. No heavy-duty rail freight line has 110-mph passenger trains operating over it today. Where

freight trains do operate over 110-mph track (Northeast and Empire Corridors, for example), the penalties imposed on freight trains are substantial. In a heavy-duty freight environment (Cleveland-Chicago is one example), high-speed passenger trains must operate over tracks dedicated to their use.

Railroading is expensive. 110 mph railroading is very expensive. As most ridership analyses indicate, the greatest growth occurs with increases in frequency, not speed, which would seem to imply that four round trips a day at 79 mph are much more cost-effective than four round trips a day at 110 mph.

City of Newport News

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OFFICE OF THE DIRECTOR

February 12, 2002

Virginia Department of Rail and Public Transportation
Attn: Alan Tobias
113 E. Main Street, Suite 300
P.O. Box 590
Richmond, VA 23218-0590

Re: Richmond – South Hampton Roads High Speed Rail Study

Dear Mr. Tobias:

The following will represent the City's comments to the Draft Ridership and Revenue Forecasting Report, Environmental Overview Draft Report and the Draft Executive Summary. Our primary issue focuses on the attempted comparison of this high-speed rail corridor with the Newport News-Richmond high-speed rail corridor. It was our understanding that this study was to focus on the feasibility of putting high-speed rail in the Route 460 corridor and to determine if there was a fatal flaw to the concept. If a comparison between the two rail corridors were needed, it would be scheduled in the future. This should continue to be the focus of the study with mention, for informational purposes only, of a high-speed rail corridor between Newport News and Richmond, which is presently served by twice daily Amtrak service at a maximum speed of 79 miles per hour that would compete for the Hampton Roads ridership.

If more historical information is needed about the Newport-News to Richmond corridor, please reference the I-64 Major Investment Study completed in June 1999. The rail component of the Locally Preferred Alternative consisted of a service frequency of eight trains per day per direction, a maximum operating speed of 110 miles per hour resulting in 66 minutes of travel time with stops at 6 stations or express service, stops at only 3 stations, of 53 minutes.

Draft Ridership and Revenue Forecasting Report

Page 4 – I assume Silver Star, Silver Meteor and Palmetto are the names of trains or train routes. I am not sure if there is some significance in naming the trains if you do not know anything about these trains or their routes versus just saying rail passenger surveys.

Page 5 – Income, is this per person, per household, median family, business income, or industrial income?

Page 7 – Highway Cost (full/incr) - What is full versus incr?

Page 10 Exhibit 8 – I would take out the comparison to Newport News-Richmond.

Page 11 Exhibit 9 – I would take out the Newport News-New York Trains and focus on the Norfolk trains. I assume the Base is existing and all the Alternatives are future.

Page 12 Exhibit 10 – Again I would focus on the Norfolk trains and take out the Newport News trains.

Page 13 Exhibit 11 – Again I would focus on the Norfolk trains and take out the Newport News trains. The only thing this table tells me is that maximum speed really is not a factor in travel time in the market so why even consider the significant expense of upgrading to 90 mph or 110 mph if there is no significant travel time saving? Focus on frequency versus speed.

Page 15 Exhibit 12 – Again I would focus on the Norfolk and Sunray station versus the Newport News and Williamsburg stations.

Page 17 Exhibit 13 – Define Passenger Miles, Train Miles, Ridership/Train Mile and Passenger Miles/Train Mile.

Page 18 Exhibit 14 – What does "incremental" mean in this table?

Page 23 Exhibit 19 – Again focus on the Norfolk station not Newport News.

Page 24 Exhibit 20 – Leave out the Newport News Corridor. Page 8 of the meeting handout seems to be a table of the same information but the information in the table is different. Which is correct?

A stronger point might be made of the desire for Hampton Roads passengers to reach a destination north of Richmond, the Northeast Corridor, and not Richmond itself. It must also be more strongly pointed out that there are limited slots of time available for rail passenger service from Richmond to the Northeast Corridor, thus limiting the number of direct trains from Hampton Roads to the Northeast Corridor, the desired destination.

Environmental Overview Draft Report

No comments.

Draft Executive Summary

Page 5 – Signaling. Additional discussion is needed here to give the reader an order of magnitude of the expense to upgrade the corridor and the equipment to be used on the corridor for high-speed service.

For this level of study I have no problem not making some decision over the routing through Petersburg. Suffice it to say as the study does that there is a viable route through Petersburg.

Page 12 – NS Main Line Between Petersburg and Suffolk. The study states, "...a primary goal of the study is that high-speed train operations be transparent to freight train operations." This cannot just mean adjusting passenger train travel around freight but adjusting freight around passenger travel such that both can function within the corridor. In the highway environment the mix between trucks and cars can be deadly so there has been some discussion to forcing trucks to make deliveries at night when car travel is at its minimum. So to, rail freight could move at night if passenger rail service was heavy during the day.

Page 15 – Alternative Terminal Locations. I strongly support the Downtown Norfolk station near Harbor Park. Sharing parking with the stadium, being near Downtown, access to the bus facilities and future light rail make this a great site if it can all be worked out.

Page 22 – The first paragraph states, "In all the scenarios, the service provided between Richmond and Newport News remains constant at current levels with two round trips per day and a maximum allowed speed of 79 mph. All scenarios assume that the proposed Hampton roads Crossing bridge/tunnel is not in place." The comparison with Newport News-Richmond should be eliminated, focusing just on the Norfolk-Richmond corridor, as the purpose of the study was not to perform a comparison between the two corridors but to see if the Route 460 corridor was feasible.

Page 27 – Need for further analysis. Presently the State prioritization of passenger rail service to Hampton Roads from Richmond is via Newport News. Further study is needed if this prioritization is to be changed or whether there is justification for both services.

Page 28 – I take exception to the second half of the last sentence. Parsons seems to be speaking for the Commonwealth, which it should not do.

For there to be any chance of political success or financial funding, the project will of course have to begin with 79 miles per hour service and limited frequency. Frequency should then be increased before attempting to increase speeds. In order to avoid spending money for capital improvements that have to be ripped out for higher speed service in the future, consideration should be given to implementing capital improvements for the 110 miles per hour service whenever financially feasible.

Dick Beadles, Virginia High Speed Development Committee, in his letter to you dated January 23, 2002, has a number of valid rail related comments and because of his vast rail experience, has stated them much better than I so I will not attempt to repeat them. I, however, am not ready to support getting a new consulting team, just making continuing modifications to the study and reports should be adequate.

Based on the comments from Bill Schafer, Norfolk Southern, the Route 460 rail corridor may have two fatal flaws. While the first is not fatal to rail passenger service, the extreme cost of 90 and 110 mile per hour service may be fatal to passenger service at speeds higher than 79 miles per hour. The second is only fatal if there is no way to run rail passenger service at any speed, at times and frequencies demanded by riders, in the corridor without impacting on freight rail service. It is critical that the two, freight and passenger rail, co-exist; both modes have to be flexible with the other.

Sincerely,

Mostafa A. Sabbah, Ph.D., P.E.
Director of Engineering

MAS:TMS:psb

pc: Special Projects Engineer, T. Slaughter

Virginia High Speed Rail Development Committee
5101 Monument Avenue
Richmond, Virginia 23230

April 17, 2002

Mr. Alan Tobias
VA Dept. of Rail & Public Transportation
1313 East Main Street, Suite 300
P. O. Box 590
Richmond, VA 23218-0590

Re: April, 2002 Version of Executive Summary,
RIC-SHR Rail Corridor Study by Parson Transp. Group, et. al.

Dear Alan:

Once again, and regrettably on my part, I have a schedule conflict and will not be able to attend the April 25 meeting of the Technical Advisory Committee relative to the Richmond - South Hampton Roads rail corridor study.

Although I do have some technical comments, which I will endeavor to get to you in advance of the meeting, I also have some "non-technical" comments and suggestions, which I believe to be of even greater importance.

Listed below are my summary conclusions and observations, based upon the above-referenced work product:

1. While I personally would not chose to use your "fatal flaws" characterization of this study and its findings, it is both remarkable -- and fortuitous -- that despite having to absorb unrealistically ***high*** (and probably unsupportable) freight train projections, ultra-conservative ***low*** passenger demand projections, and seemingly very generous preliminary engineering estimates, rail passenger service to South Hampton Roads turns out to be operationally feasible and quite cost-effective.

2. While further study and refinement will obviously be necessary in the future, such work is not, in my view, our highest priority as a next step.

3. Our most pressing need is to agree, as a region (Hampton Roads), that both sides of Hampton Roads warrant modern, direct, inter-city rail passenger service at the earliest possible date. We -- speaking of VHSRDC -- would hope that a consensus would emerge for achieving the foregoing, with the following stipulations: (i) that the Peninsula should be given first priority, and (ii) that the need to serve South Hampton Roads is more important to the Commonwealth than service to North Carolina, without prejudice to the latter.

4. This study, with all of its limitations and imperfections, makes it quite clear that the most prudent and cost-effective approach to achieving future high-speed rail development, regardless of how high, high-speed service is to ultimately be in the future,

and regardless of the desirability of having HSR-restricted rail trackage, is to start with 79-mph maximum ("conventional") rail passenger service. What is most important, in the beginning, is to have frequent departures, modern equipment, and user-friendly service that is highway competitive both as to convenience and travel time.

Note: I suspect that few non-technical readers of the report will automatically grasp that the projected 2025 condition (as to projected train traffic volumes) and > 79-mph speeds are the controlling "drivers" of cost estimates and "critical" freight rail interface hurdles.

5. Even without laying claim to natural disaster and Homeland Defense evacuation capabilities to be derived from implementation of the "5A" service levels, the estimated price tag for the projected service is a transportation bargain for Hampton Roads.

It is time we placed these issues squarely in the hands of the region's elected leaders, and other public-policy makers at both the State and Federal levels.

In my judgement, the very worst thing we could do would be to get bogged down in another premature technical study prior to making some fundamental policy decisions.

Bold leadership is needed.

Sincerely,

Richard L. Beadles, Vice President
VA High Speed Rail Development
Committee.

cc: Technical Committee e-mail list.